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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,696	05/25/2006	Winfried Esser	2003P10441WOUS	5436

22116 7590 12/30/2008  
SIEMENS CORPORATION  
INTELLECTUAL PROPERTY DEPARTMENT  
170 WOOD AVENUE SOUTH  
ISELIN, NJ 08830

EXAMINER
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WONGWIAN, PHUTTHIWAT

ART UNIT	PAPER NUMBER
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3741

MAIL DATE	DELIVERY MODE
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12/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/580,696	<b>Applicant(s)</b> ESSER, WINFRIED	
	<b>Examiner</b> PHUTTHIWAT WONGWIAN	<b>Art Unit</b> 3741	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

1. This office action is responsive to the amendment filed on 11/11/2008.

### *Response to Arguments*

2. Applicant's arguments filed 11/11/2008 have been fully considered but they are not persuasive.

Applicant argues on page 11 of the remarks that "There is no suggestion or reference to using any of these compositions to produce a solid metallic component of a turbine machine such as a rotor blade or guide vein, for example. Indeed, applicant submits that one skilled in the art would not consider the Park reference as an analogous art in arriving at the claimed invention. Indeed, the Park reference provides a composition that is intended for an entirely different purpose as the claimed invention", examiner disagree.

Park clearly teaches the **metal promoter** or dopant are selected from the group consisting of indium, gallium, tin, silver, germanium, gold, nickel, cobalt, copper, iron, manganese, molybdenum, chromium, cerium, and vanadium (abstract) that use in the gas turbine engine (Page 9, paragraph 107, lines 13-14) exhaust system. Since, the strength promoter as discloses by Park, is used in the high temperature area, as noted by applicant on page 11 of the remarks. It would have been obvious to use the strength promoter of Park in Yoshinari's invention in order to increase the strength and thermal

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resistant of the super-alloy. In addition, the strength promoter is well known in the art to increase the strength of super-alloy, therefore, it would have been obvious to add the strength promoter of Park to the super-alloy of Yoshinari.

Applicant argues on page 11 of the remarks that "Accordingly, one skilled in the art would not be motivated, nor is there any suggestion in these references, to combine components of the Park catalyst composition, namely the metallic dopant, to the nickel-based superalloy disclosed in Yoshinari to enhance the heat resistant characteristics of the rotor blade in a turbine machine". Examiner disagree, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As discussed above, Park clearly teaches the metal promoter that use in the combustion system, therefore, it would have been obvious to use the promoter metal of Park in Yoshinari's invention in order to increase thermal resistant strength.

Applicant argues on page 12 of the remarks that "there is not disclosed using a metallic strength promoter as part of a super-alloy to enhance the characteristics of a turbine components". Examiner disagree, since Park teaches a metallic strength promoter, it would have been obvious to implement the portion that need to be added to the super-alloy of Yoshinari in order to provide a suitable strength for the super-alloy.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19-31 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinari (US Patent No. 5,611,670) in view of Park (Pub. No. 20030171216).

6. As to claims 19-31 and 36-37, Yoshinari discloses a high temperature gas turbine component comprising: a root section (fig. 1, the part that in contact with 15); a platform section 15 (fig. 1) arranged adjacent to the root section; a tip section 17 (fig. 1) arranged radially opposite the root section; a leading edge 1 (fig. 1) arranged between the platform and tip sections; a trailing edge 23 (fig. 1) arranged downstream of the leading edge; and a main section (fig. 1 between 1 and 23) arranged between the leading edge, trailing edge, platform section and tip sections, the high temperature gas turbine component is a turbine blade (fig. 1) wherein the precipitation is the gamma phase (col. 2, line 65) and a nickel-base super alloy comprises of a Ni-base superalloy having the following suitable composition by weight %, up to 0.20% C, 5 to 14% Cr, 4 to 7% Al, 2 to 15% W, 0.5 to 5% Ti, up to 3% Nb, up to 6% Mo, up to 12% Ta, up to 10% Co, up to 2% Hf, up to 4% Re, up to 0.035% B, up to 0.035% Zr, and the balance of 58% or more Ni (col. 3, line s 7-12 and 35-55).

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Yoshinari does not disclose the exact same proportions of the alloy as claimed and the superalloy is precipitation strengthened by the addition of 50-2000 ppm, up to 1100 ppm, 100-500 ppm and 75-2000 ppm of a strength promoter that increases the strength of the component by increasing the formation of precipitants where the strength promoter is selected from the group consisting of: zinc (Zn), tin (Sn), lead (Pb), gallium (Ga), calcium (Ca), selenium (Se), arsenic (As), bismuth (Bi), neodymium (Nd), and praseodymium (Pr).

However, Park teaches the promoter or dopants are selected from the group consisting of indium, gallium, tin, silver, germanium, gold, nickel, cobalt, copper, iron, manganese, molybdenum, chromium, cerium, and vanadium (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Yoshinari's invention such that the alloy has exact same proportions as claimed since the alloy proportions disclosed by Yoshinari overlap the instantly claimed proportions and also it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Yoshinari's invention to include the superalloy is precipitation strengthened by the addition of 50-2000 ppm, up to 1100 ppm, 100-500 ppm and 75-2000 ppm of a strength promoter that increases the strength of the component by increasing the formation of precipitants where the strength promoter is selected from the group consisting of gallium, as suggested and taught by Park, for the purpose of providing a suitable thermal barrier for the turbine blades which exposes to the high temperature, thereby extending the life of the turbine and also, it would have been obvious to one having ordinary skill in the art at the time the invention was made

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to select any portion of the superalloy and to add the strength promoter of 50-2000 ppm, up to 1100 ppm, 100-500 ppm and 75-2000 ppm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. As to claim 38, Yoshinari discloses a gas turbine engine, comprising: a rotationally mounted rotor (fig. 7, turbine) arranged coaxially with the longitudinal axis of the engine; an intake housing 39 (fig. 7) arranged coaxially with the rotor that intakes a working fluid; a compressor (fig. 7, compressor) that compresses the working fluid; an annular combustion chamber (fig. 7, combustor) comprised of a plurality of components that accepts the compressed working fluid, mixes a fuel with the compressed working fluid and combusts the compressed working fluid and fuel mixture to create a hot working fluid; and a turbine section 43 (fig. 7) that expands the hot working fluid, wherein at least one combustion chamber or turbine component is formed from a nickel, cobalt or iron superalloy (col. 3, line 6, "Ni-base superalloy") but does not that the alloy is precipitation strengthened by the addition of 50 ppm to 2000 ppm of a strength promoter from the group consisting of: zinc (Zn), tin (Sn), lead (Pb), gallium (Ga), calcium (Ca), selenium (Se), arsenic (As), bismuth (Bi), neodymium (Nd), and praseodymium (Pr). However, Park teaches the promoter or dopants are selected from the group consisting of indium, gallium, tin, silver, germanium, gold, nickel, cobalt, copper, iron, manganese, molybdenum, chromium, cerium, and vanadium (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Yoshinari's invention to include the superalloy is

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precipitation strengthened by the addition of 50-2000 ppm of a strength promoter that increases the strength of the component by increasing the formation of precipitants where the strength promoter is selected from the group consisting of gallium, as suggested and taught by Park, for the purpose of providing a suitable thermal barrier for the turbine blades which exposes to the high temperature, thereby ,extending the life the turbine and also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the strength promoter of 50-2000 ppm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinari in view of Park and further in view of Satek (Pub. No. 20040131984).

9. As to claims 32-33, Yoshinari's modified invention disclose the essential features of the claim invention except the ruthenium content is 0.5-5 and 1.3-3 percent by weight. However, Satek teaches the combustor comprises group VIII metal such as ruthenium. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Yoshinari's invention to include ruthenium content is 0.5-5 and 1.3-3 percent by weight, for the purpose of enhancing the performance of the turbine blade by increasing strength and also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select any portion of the ruthenium for the turbine blade, since it has been held that where the general conditions



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of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

10. As to claims 34-35, Yoshinari discloses the component material has directionally solidified (col. 2, line 45-60) wherein the component is a gas turbine blade (fig. 1).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUTTHIWAT WONGWIAN whose telephone number is 571-270-5426. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL A. CUFF can be reached on 571-272-6778. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. W./  
Examiner, Art Unit 3741

/Michael Cuff/  
Supervisory Patent Examiner, Art Unit 3741